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User's Manual for Species-Specific Biological Information (SSBI) Tool

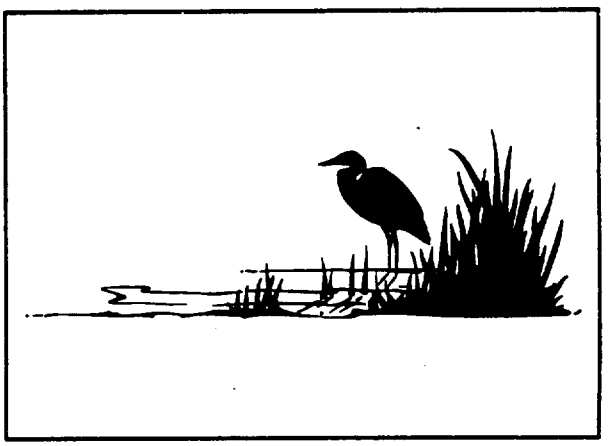
Version 1.0

by
Georgia Sebesta and Alison Hill

The Species-Specific Biological Information (SSBI) Tool version 1.0 helps installation and government personnel access general biological, status, and habitat information on Threatened, Endangered, and Sensitive (TES) species that reside on military lands.

SSBI requires a 386 IBM-compatible 25-MHz personal computer with a minimum of 4 MB of Random Access Memory (RAM), VGA capabilities and 15 MB of hard drive space.

This manual contains instructions on installing and using SSBI to search and access information on a variety of TES species.



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Foreword

This study was conducted for the Office of the Directorate of Environmental Programs (DAIM), Assistant Chief of Staff for Installation Management, ACS(IM), under Project A162720A896, "Environmental Quality Technology"; Work Unit EN-UA5, "Protocols for Evaluating the Status of Threatened and Endangered Species." The technical monitor was Phil Pierce, DAIM-ED-N.

The work was performed by the Natural Resource Assessment and Management Division (LL-N) of the Land Management Laboratory (LL), U.S. Army Construction Engineering Research Laboratories (USACERL). The USACERL principal investigator was Dr. Alison Hill. Dr. David J. Tazik is Acting Chief, CECER-LL-N, and Dr. William D. Severinghaus is Operations Chief, CECER-LL. The USACERL technical editor was Gloria J. Wienke, Technical Resources.

COL James T. Scott is Commander, and Dr. Michael J. O'Connor is Director of USACERL.

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1 Introduction

Background

More than 400 threatened, endangered, and sensitive (TES) species are known or suspected to reside on Army lands. The Army is faced with the challenge of managing over 12 million acres of land. In this capacity they have to answer many questions regarding TES species. Often, Army land managers may not have the information they need to make land-based decisions. A great deal of time is spent tracking down answers to these questions, often requiring numerous phone calls and hours of library searching. The U.S. Army Construction Engineering Research Laboratories (USACERL), in developing capabilities to enhance the military's ability to meet requirements of the Endangered Species Act (ESA), developed the Species-Specific Biological Information (SSBI) Tool as a component of the TES Species Automated Information Management System (TESSAIMS) (Sebesta, 1995).

The SSBI Tool consists of: (1) a database containing biological information on TES species, and (2) a Graphic User Interface (GUI) that permits users to connect with the database. The program provides access for those individuals with questions on managing sensitive species and sensitive areas. It is not intended to be the definitive authority for all TES species or topic areas. Instead, it serves as a first look at these species topic areas and provides a searching framework to expand upon. The SSBI Tool is intended to provide the military a valuable reference tool and baseline information on basic species-specific biological needs and requirements.

Objective

The objective of this effort is to provide a reference tool for the installation land manager and others with questions on managing sensitive areas and TES species. This effort includes the following steps: (1) compile the available information on the biological needs and status of TES species, (2) develop an application to provide easy access to the information, and (3) generate a standard report to convey the information.

Approach

The main program, TESSAIMS (Sebesta, 1995), of which SSBI is a component, was developed in four distinct stages that overlapped throughout the project. These four stages included development of the database and information needs, and development of three individual applications: Biodiversity and TES Species Experts (BioTES) (Sebesta and Hill, December 1996), SSBI Tool, and Installation-Specific Tracking Information (TRACKER) (Sebesta and Hill, DRAFT). Database development continued to change and improve throughout the entire process. The SSBI Tool was the second application developed of the three. It was developed due to the similarities between it and the BioTES application development and the availability of information. Both SSBI and BioTES share a similar programming format and structure. The information for this application was collected from an external source according to Army users' needs. SSBI was developed to provide installations easy access to species-specific information, in exchange for installation-specific TES species information.

The approach included four basic steps: (1) determining the basic biological needs for TES and the user requirements, (2) finding and compiling the information in the topic areas, (3) assembling the TES database, and (4) developing an access tool for the database. The initial step defined and determined the minimum information necessary for land managers to make information decisions on TES species. The second step located and compiled various sources for the necessary biological and status information. The third step created and assembled the database using the major topic areas. Once the database was populated, programming the front-end GUI began.

Once the development stages were completed, internal and field testing validated both the information and the application. Internal testing comprised five stages: (1) choosing a group of knowledgeable experts in natural resources and application development, (2) distributing the application, (3) obtaining overall feedback, (4) analyzing feedback comments, and (5) modifying both the database and application as necessary. Internal testing on the SSBI Tool is completed. The release of SSBI, version 1.0 and this User's Manual are the end products of this effort.

Scope

The scope of SSBI is limited by several factors. First, the information obtained from external sources on over 200 Federally listed and candidate species is current as of November 1993. Second, the list of species is not an exhaustive list of TES species

on military lands, nor a complete list of special status species for the Army. The list evolved in the summer of 1992, when a survey requesting information on TES species was sent out to Army installations. From the responses to this survey, a list of Federally listed species, threatened and endangered, and Federal candidate species was compiled.

The application has two limitations associated with its development. First, SSBI accesses the TES database using SQLBase database engine only. Currently, users are not allowed to perform updates automatically into the database from the application. This means that updates will need to be prepared in SQLBase regularly and distributed from a centralized environmental support center to program recipients. Secondly, the application searches only on a single species at a time, via the common name or a scientific name.

Mode of Tech Transfer

The SSBI Tool will be sent to Major Commands and Army-level environmental managers. It is ready to be transitioned to the installations and a support organization. Support may be needed to help installation personnel install and use the program and to provide users with periodic updates of the database or newer versions of the program.

2 Using the Manual

Manual Specifics

The SSBI Tool User's Manual is written with the assumption that you have a basic understanding of Microsoft Windows 3.1 and DOS 3.0 or newer. If you need additional information on using Windows or DOS, refer to the appropriate user's manual.

The next three chapters of this manual provide information on installing and using the SSBI Tool and a description of the system and its data requirements. Chapter 3 provides instructions for configuring your personal computer (PC), and installing the program. Specific instructions on various program options and ways to obtain the desired information from the database can be found in Chapter 4. Chapter 5 explains the database and data. Topics include the related tables, specific data elements, and the data collection process for the current information.

The manual can be used as a reference to help you find specific information and instructions on the various topics. Some instructions are repeated in several sections, so that individual topics are presented in a complete format. Some topics may be cross-referenced to direct you to other sections with more detail. Throughout the manual, items are highlighted in a uniform manner.

Syntax is as follows:

<Bold>	Text in bold and surrounded by carats refers to various actions including menu selections, button controls, or key strokes.
Bold	Text in bold and starting with a capital letter refers to individual dialog boxes or windows.
BOLD	Text in bold and all capitals refers to file names, directories, or database elements, including table names and field or column names. This is information on the supporting elements either from the database or the application.

Italic Text in *italic* refer to tables or data elements that are not currently populated.

Terminology

In this manual, there are a few terms used repeatedly that refer to the same concept. The terms include:

Synonyms	Definition
Prototype, Application, Program, Front-End	Prototyped Application (Beta Version)
Exit, Close, Cancel	Leave dialog box, window, or program without any further actions
Data, Information	Specific information from the database

3 Installing the Application

System Requirements

The SSBI Tool runs on an IBM-compatible PC, with mouse, under Windows 3.1 and MS-DOS 3.0 or later. The minimum configuration is an IBM-compatible 386 at 25 MHZ speed with at least 4 MB RAM. The minimum hard drive requirement is 15 MB for the program and its components, including the TES database. For ideal running capabilities, use a 486SX at 33 MHZ with 8 MB RAM. The minimum monitor capabilities are VGA; use SuperVGA for best results.

Software Requirements

The SSBI Tool requires two commercially available software packages in addition to MS-DOS and WINDOWS. Developers recommend the SQLBase database engine (Version 5.1.2 or later) by Gupta Technologies, Inc., and the ODBC Driver Pack (Version 1.0 or later) by Q+E Software/Intersolv Inc. These commercial applications support the TES database and links from the application to the database. For installation instruction of these two commercial packages, refer to the appropriate user's manual. To install the ODBC Driver Pack, please make sure that the drivers for SQLBase are selected for installation. The ODBC Driver Pack, although not the only available source for drivers, is the only one tested with this program.

Installation Process

Before installing the program, be sure to make a backup copy of the distribution disks as an added precaution in case of accidental data loss. Consider installing the backup disks, as opposed to the distribution disks. Once the backup is done, place the first disk into the appropriate floppy drive. Start Windows and select **<Run>** under **<File>** from the Windows Program Manager menu. Type in the appropriate drive and **INSTALIT** as in Figure 1.

Once the installation process begins it will ask you to enter the location from which you want to install the program and the drive you want to install it to. It is preferable

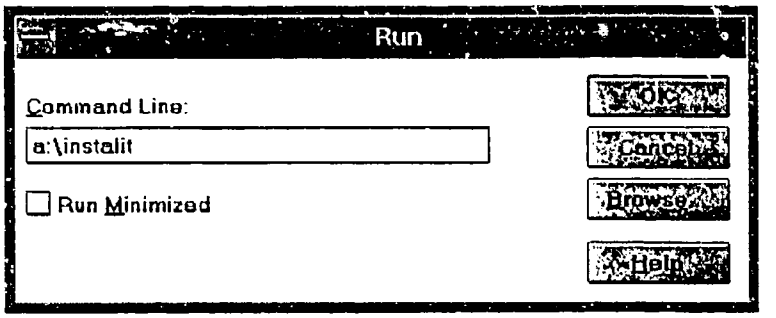

Figure 1. Using the Program Manager's RUN to Install SSBI.

to use the C: Drive (the default drive), if possible. The **INSTALIT** program will install all the front-end program files and the database files on the drive you chose. Four installation directories will be used and/or created, if necessary: **\SSBI, \SQLBASE\TES, \WINDOWS,** and **\WINDOWS\SYSTEM.** Since Windows should be installed before installing this program, **INSTALIT** will only add the necessary file, not overwrite the directory. The **\SSBI** contains the necessary application files. The **\SQLBASE\TES** contains the database. **WINDOWS** and **WINDOWS\SYSTEM** contain the necessary libraries and links for the database and the program to run under Windows. If a duplicate file is found, a dialog box pops up asking you to confirm replacing the file. In most cases, it is not advisable to replace current files. If there is a question about this, use the most current version of the file.

If you do not or cannot use the C: Drive you will need to modify two files after the install program is done. In the path statement of the **AUTOEXEC.BAT** or **BOOTPATH.BAT** file, add the directory you have chosen for the program, e.g., **D:\SSBI**, and verify that **Windows** is in the path. You will also need to modify the **ODBC.INI** file located in the **WINDOWS** directory. **ODBC.INI** should look like the file in Table 1, however the drive or paths may differ, for example, d:\ may replace c:\. The path for **WINDOWS** drivers may need modification.

TESSAIMS Applications

If you have more than one application of TESSAIMS, the **ODBC.INI** file (Table 2) will look different. Each of the three components, SSBI, BioTES, and TRACKER, has a different need for this file. Similar to the instructions given in the Installation Process section, the appropriate path designation needs to be entered in this file. Each individual component user's manual will have the appropriate lines for **ODBC.INI** file.

Table 1. ODBC.INI example file and necessary lines for SSBI.

```
[ODBC Data Sources]
QEGUP=Q+E SQLBase

[QEGUP]
Driver=C:\WINDOWS\SYSTEM\QEGUP03.dll
Description=
Database=TES
ServerName=LOCAL
Servers=
LogonID=
QEWSD=34574
yieldproc=1
```

Table 2. ODBC.INI example file and necessary lines for TESSAIMS.

```
[ODBC Data Sources]
QEDBF=Q+E dBASEFile (*.dbf)
QEGUP=Q+E SQLBase

[QEDBF]
Driver=C:\WINDOWS\SYSTEM\simba.dll
FileType=dBase4
DataDirectory=c:\dbase2
SingleUser=True

[QEGUP]
Driver=C:\WINDOWS\SYSTEM\QEGUP03.dll
Description=
Database=TES
ServerName=LOCAL
Servers=
LogonID=
QEWSD=34574
yieldproc=1

[QEGU1]
Driver=C:\WINDOWS\SYSTEM\QEGUP03.dll
Description=
Database=TESDATA
ServerName=LOCAL
Servers=
LogonID=
QEWSD=34574
yieldproc=1
```

4 Using the SSBI Tool

This chapter describes the use and manipulation of the SSBI application in sequential order of the menu system, **<File>** and **<Species Selection>**. The **<File>** menu has the **<Exit>** menu selection. The **<Species Selection>** menu is the initial step in starting to search for information on individual species, by **<Common Name>**, **<Scientific Name>**, or **<Category>**.

There are two buttons common to all of the dialog boxes in this application, **<OK>** and **<Cancel>**. **<OK>** opens the next dialog box, once appropriate selections are made. **<Cancel>** closes the current dialog box not retaining any selections made. Instructions for these buttons will be restated in the appropriate following sections.

File Menu - Exiting the Program

<Exit> (Figure 2) closes and ends the program. The **<Exit>** option is located under the **<File>** menu option. Execute this option by clicking once on **<File>**, in the main menu, and then on **<Exit>**.

Species Selection - Choosing a Species

The **<Species Selection>** (Figure 3) menu option gives general access to the information in the program. There are 3 options, **<Common Name>**, **<Scientific**

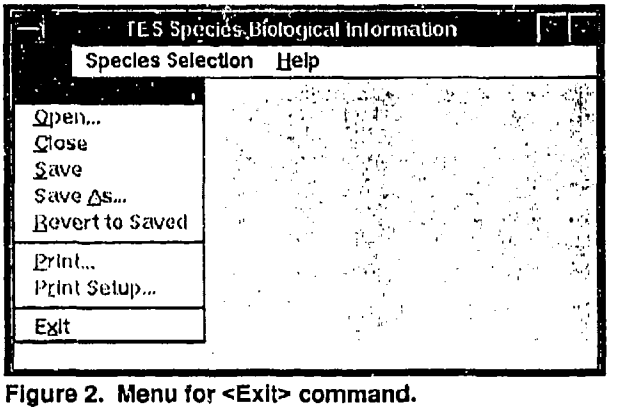

Figure 2. Menu for <Exit> command.

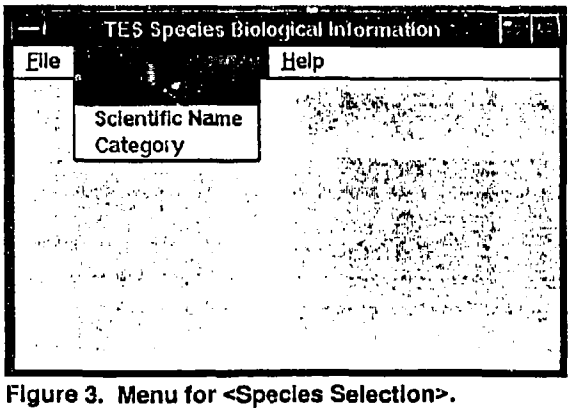

Figure 3. Menu for <Species Selection>.

Name>, and **<Category>**, which allow you to search for a specific species. For each of these menu selections, only one option (i.e., species name or category) can be selected at a time.

Choosing a Species Using a Common Name

The **<Common Name>** (Figure 3) menu option, under the **<Species Selection>** menu, brings up a dialog box titled **Select the Species of Interest** (Figure 4). By using this selection, an alphabetic listing of available species in the database is shown, with the common name first and the scientific name in brackets immediately following (i.e., Common Name [Scientific Name]). Select a species by clicking on one of the names on the list. The lower corner of the dialog box contains three buttons: **<Reverse Order>**, **<OK>**, and **<Cancel>**. The **<Reverse Order>** button reverses the presentation order of the species names to Scientific Name [Common Name]. The **<OK>** button allows you to progress to the next dialog box, **Information Request** (Figure 5), once a single selection is made. The selection remains the species of interest until a new species is selected by revisiting the **Select the Species of Interest** dialog box. The **<Cancel>** button will close the dialog box and not retain any new selection made.

Choosing a Species Using a Scientific Name

The **<Scientific Name>** menu option (Figure 3), under the **<Species Selection>** menu, brings up the **Select the Species of Interest** (Figure 4) dialog box. By using this selection, a list of available species in the database is shown, in alphabetical order with the scientific name first and the common name in brackets immediately following (i.e., Scientific Name [Common Name]). The scientific name contains the genus, species, subspecies, and variety for each of the species. By clicking on one of the names in the list, the desired selection is chosen. The lower corner of the dialog box contains three buttons: **<Reverse Order>**, **<OK>**, and **<Cancel>**. The **<Reverse Order>** button reverses the order of presentation of the

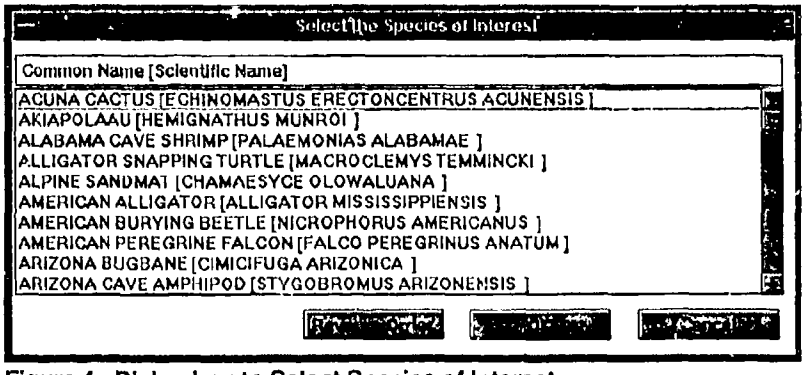

Figure 4. Dialog box to Select Species of Interest.

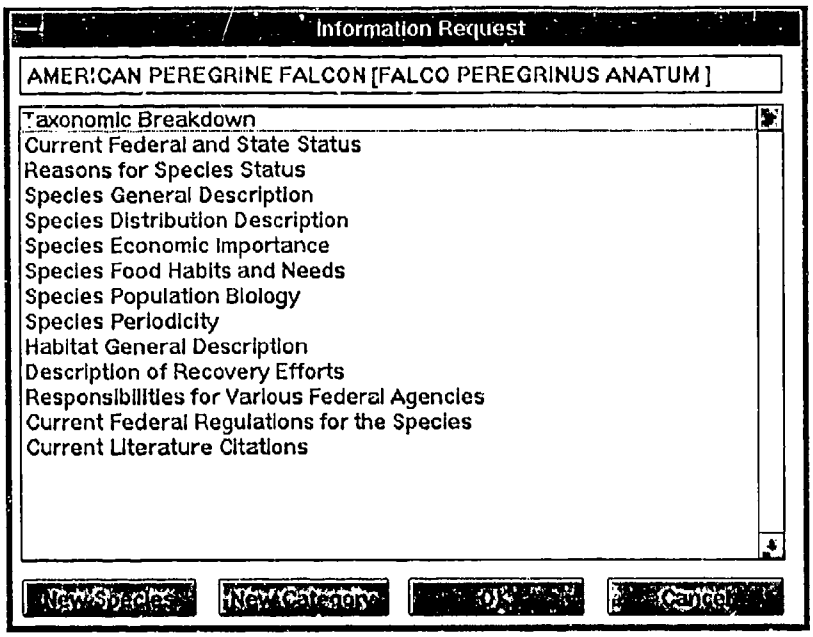

Figure 5. Dialog box for Information Request.

names of the species to Common Name [Scientific Name]. The **<OK>** button allows you to progress to the next dialog box, **Information Request** (Figure 5), once a single selection is made. The selection remains the species of interest until a new species is selected by revisiting the **Select the Species of Interest** dialog box. The **<Cancel>** button will close the dialog box and not retain any new selection made.

Choosing a Species Using a Category

The **<Category>** (Figure 3) menu option, under the **<Species Selection>** menu, provides an easy mechanism to narrow the scope of the species list viewed from the database. This menu option brings up a dialog box, **Category Choices** (Figure 6), containing 11 categories: amphibian, bird, clam, crustacean, fish, insect, invertebrate, mammal, plant, reptile, and snail. By selecting one of these choices, you can view only those species that fall into that category in the **Select the Species of Interest** (Figure 4) dialog box. Two buttons are located in the lower right corner of the dialog box: **<OK>** and **<Cancel>**. The **<OK>** button will bring up the **Select the Species of Interest** and proceed through the remainder of the application as the **Using Common Name** or **Using Scientific Name** portion of the manual describes. The **<Cancel>** button will close the dialog box and not retain any new selection made.

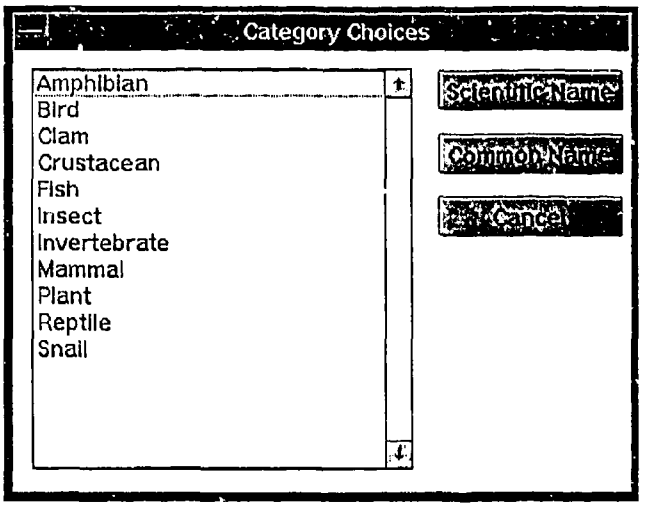

Figure 6. Dialog box for Category Choices.

Information Request - Selecting the Topic Areas

The **Information Request** (Figure 5) dialog box presents 14 topics of information available. The species of interest from the **Select the Species of Interest** (Figure 4) dialog box, is located in the upper portion of the **Information Request** dialog box. These topics, pertaining to the specific species of choice, include:

1) taxonomic breakdown,
2) Federal and state status,
3) reasons for species status,
4) general description,
5) distribution description,
6) economic importance,
7) food habits and needs,
8) population biology,
9) periodicity,
10) habitat general description,
11) description of recovery efforts,
12) responsibilities for various Federal agencies,
13) Federal regulations of the species, and
14) literature citations.

In the dialog box, multiple selections may be made to obtain as much information as is desired. Multiple noncontiguous selections are done by holding the **<Ctrl>** key down while making the choices. Multiple contiguous selections are made by holding the **<Shift>** key down while clicking on the starting choice of the list and then clicking on the last choice. There are four buttons in the lower portion of the dialog

box to choose from: **<New Species>**, **<New Category>**, **<OK>**, and **<Cancel>**. The **<New Species>** button will return you to the **Select the Species of Interest** dialog box using any parameters already in place. The parameter in this case may be your selection of a particular category from the **Category Choices** dialog box. This button will allow the change in the species of interest. The **<New Category>** button will return you to the **Category Choices** (Figure 6) dialog box and allow a change in which category the species list will come from. The **<OK>** button will open the next dialog box, **Information** (Figure 7), and retrieve species information from the database. If no selections are made in the **Category Choices** (Figure 6) dialog box, no information will be retrieved in the following steps. The **<Cancel>** button will close the dialog box and not retain any new selection made.

Information - Output of Topical Information on a Specific Species

The **Information** (Figure 7) dialog box presents the information available from the database, in accordance with the topic areas chosen in the **Information Request** (Figure 5) dialog box. The information is shown in the order given in the **Information Request** dialog box. Each topic area has a heading, an underline between the heading and the information, and the information itself. If there is a heading and an underline, but no information follows it, the information is not currently available. There are five buttons located along the right side of the dialog box: **<Copy>**, **<New Information>**, **<New Species>**, **<New Category>**, and **<Cancel>**. The **<Copy>** button will allow you to copy selected information from the window into any text editor or word-processor. The desired information must be selected before selecting the **<Copy>** button. To select a section, place the cursor

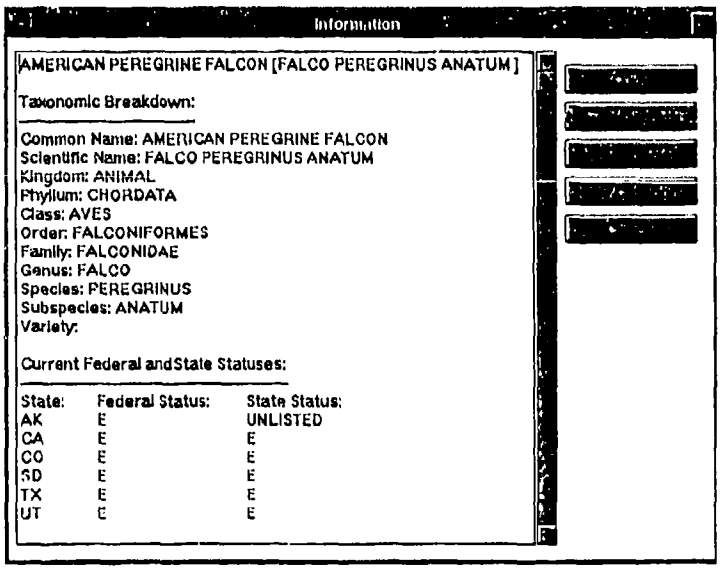

Figure 7. Dialog box for Information.

at the start and hold the mouse key. Then drag the mouse to the lower corner of the desired section, and release the mouse key. Proceed by clicking on the **<Copy>** button and paste the section into a wordprocessor. The **<New Information>** button will return you to the **Information Request** dialog box and different or additional topic areas as desired. The **<New Species>** button will return you to the **Select the Species of Interest** dialog box using any parameters already in place, and will change the species of interest. The parameter in this case is whether or not you have selected a particular category from the **Category Choices** dialog box. The **<New Category>** button will return you to the **Category Choices** (Figure 6) dialog box and change the category the species list will come from. The **<Cancel>** button will close the dialog box and not retain any new selection made.

5 Database

Data Sources

The species represented in the database are a result of a survey sent out to Army installations in 1992. More than 170 installations responded to the survey. The survey requested the names of known or suspected Federal TES species occurring on installations. The resultant list of species contains 91 Federally threatened or endangered species and approximately 100 Federal candidate species. Information in the database was obtained from a privately operated company called BioData, Inc., and their nonprofit counterpart, the Threatened and Endangered Species Information Institute (TESII). TESII was developed as one of the first institutes to house a library dedicated solely to TES species. These organizations procured the Endangered Species Information System (ESIS) Database from the U.S. Fish and Wildlife Service and updated the information based on current knowledge.

Data Limitations

Species information is current as of November 1993. Since the initial species list was compiled from approximately 170 Army installations in 1992, the species list is not an exhaustive list of TES species occurring on Army lands. In addition to this, the information on TES species is continually increasing. New information, as well as new species, will need to be added periodically. Optimally, annual updates of biological information on species would coincide with expanded species list, based on installation information.

Data and Database Structure

SSBI is a relational database consisting of a series of tables holding many records linked by unique identifiers, or primary keys. These unique identifiers represent a single distinct element that is entered into the database. In the case of SSBI tables, the primary key, **SPPCODE**, represents individual species. It is used in queries to access information from multiple tables. **SPPCODE** is made up of a combination of the first two letters of genus and species (e. g., ACCO for *Accipiter*

cooperii [Cooper's Hawk]) for animals. If duplicates arise from this naming convention, a number is added at the end of the **SPPCODE** (e.g., ACCO1). For plants, **SPPCODE** is taken directly out of the *National List of Scientific Plant Names, vol 1, List of Plants Names* (USDA, 1982), which uses a naming convention similar to that for animals.

The overall TES Species database (Appendix A) consists of three distinct sets of information with established links. Each set of information supports one of the applications in TESSAIMS. The table names within these sets start with a unique name. For example, **S_** labels are species-specific information tables, **E_** labels support BioTES, and **T_** labels are installation-specific information tables. In addition to standardizing table names, an attempt to standardize information topics within distinct tables was made. Individual tables and fields are defined in further detail in the Database Tables and Column Names and Future Information Needs sections of this chapter.

Database Tables and Column Names

SSBI uses only a portion of the overall TES Species database. Currently, there are eight tables supporting this component, **TAXONOMY, S_DESCR, T_SPP_OCCURRENCE, S_FED_AGENCY, S_FED_LAW, S_RECOVERY, S_HABITAT**, and **S_LITERATUR**. Descriptions on these supporting tables and elements are found in Appendix B. Only a portion of the SSBI tables are currently populated. Unpopulated fields are italicized.

Future Information Needs

There is a great deal of information that has been identified as being important to develop an accurate description of individual TES species biological needs. Not all of this information is currently available. Appendix B contains a list of tables and data elements that are considered important, but have yet to be populated. Subsequent releases of the software and database updates should consider adding these. Remember that items written using the italics style are not populated by information in the database.

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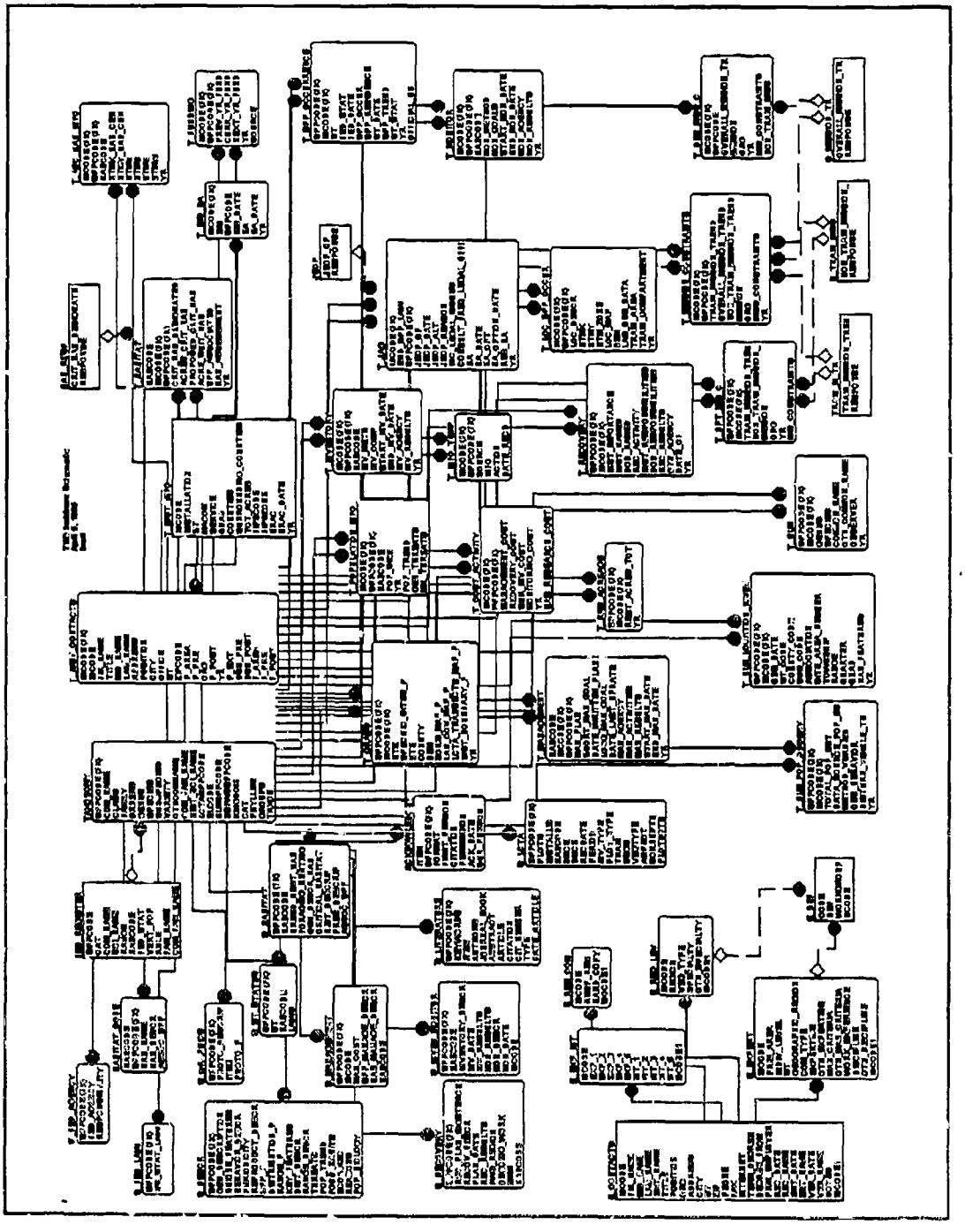
Appendix A: TES Automated Information Management System Database Schematic



Appendix B: Database Tables and Fields

*Note: Fields in italics are not currently populated in the database.

S_DESCR	Biological characteristics for species in the database	
	SPPCODE	Code for the element
	GEN_DESCRIPTION	General description of the element
	UNIQUE_FEATURES	*Description of the unique features for the element*
	BEHAVIOR_DESCR	Description of the behavior for the element
	PERIODICITY	Response of element to length of day, time of year, etc.
	REPRODUCT_DESCR	*Description of the reproduction behavior for the element*
	SPP_P	*Graphics of the element*
	DISTRIBUTION_P	*Graphic of the distribution for the element*
	RANGE_P	*Graphic for the range map of the element*
	KEY_FEATURES	*Description of any key features for the element*
	THREATS	Threats to the element or the habitat of the element
	FOOD_HABITS	Food habits of the element
	ECONOMIC	Economic value of the element
	REASONS	Reasons for current status of the element
	POP_BIOLOGY	Description of population biology of element
	BEHAVIOR_DESCRIP	*Description of behavior of element*
	DIST_DESCR	*Description of distribution of the element*
	RANGE_DESCR	*Description of range of element*
	POP_TREND	*General population trend for the element*
TAXONOMY	Complete taxonomic description for each species, from kingdom down to subspecies or varietal level.	
	SPPCODE	Species code for the element
	ELCODE	*Element code (BCD)*
	COM_NAME	Common name for the element
	KINGDOM	Kingdom of the element
	PHYLUM	Phylum of the element
	TAXON	Describer of taxon, year described, narrative on any taxonomic dispute
	GROUP	Group of the element
	CLASS	Class of the element
	FAMILY	Family of the element
	ORDERS	Order of the element
	GENUS	Genus of the element

SPECIES	Species of the element
SUBSPECIES	Subspecies of the element
VARIETY	Variety of the element
OTHCOMNAME	Other common names for the element
COM_FAM_NAME	Other common family names for the element
HIST_SCI_NAME	Historical scientific names for the element
LCTASPPCODE	*LCTA code for the element*
BLMSPPCODE	*BLM code for the element*
USFWSSPPCODE	*USFWS code for the element*
CAT	Generic category for the element

T_SPP_OCCURRENCE Information on known or potential existence of (named) species on (named) installation

SPPCODE	Code for element
INCODE	Code for the installation
ST	States where the installation resides
FED_STAT	Federal status of the species
FED_DATE	Date of the Federal Register listing from which the information was taken
SPP_OCCUR	Known or potential element occurrence on installation
SPP_RESIDENCE	*Periodicity of residency for element on installation*
SPP_TREND	General trend of the element's existence on the installation
YR	Year information was provided
ST_DATE	Date of most recent document received on state statuses from that state
ST_STAT	State status of the element
OFFICIAL_UN	Whether listing is official (covered by state law) or unofficial

S_FED_AGENCY Name of federal agency responsible for management of each species, and description of responsibilities

SPPCODE	Code for the species
FED_AGENCY	Federal agency responsible for management of the species
RESPONSIBILITY	Responsibility of the Federal agency

S_FED_LAW Federal laws affecting each species

SPPCODE	Code for the species
US_STAT_LAW	Federal law affecting the species

S_RECOVERY Existence, description, contact persons for recovery plans for species (possibly outside the realm of the military)

SPPCODE	Code for the element
REC_PLAN_EXISTENCE	*If a recovery plan exists for the element*
RECOV_DESCR	Synopsis of the recovery plan for the element

REC_RESULTS	*Results of the recovery plan*
IDCODE	*Code for the contact point for the element or plan*
ONGOING_WORK	*General description of the ongoing work for the element by the given agency*
MIN#	*Code for obtaining recovery plans from reference service*
HABCODE	*Code for the habitat*
PLAN_DATE	*Date of recovery plan*

S_HABITAT Habitat description for each species, including general description, nesting and breeding habitat, historical and present habitat and range.

SPPCODE	Code for the element
HABCODE	*Code for the habitat*
BREED_NEST_HAB	*General description of the nesting and breeding habitat*
FORAGING_HUNTING	*General description of the foraging and hunting habitat*
GEN_DESCR_HAB	General description of the habitat for the element
CRITICAL_HABITAT	*If the species has designated critical habitat*
HIST_DESCRIP	*Description of the historical habitat and range*
PRES_DESCRIP	*Description of the present habitat and range*
ASSOC_SPP	*Other elements associated with the element listed in this table*

S_LITERATUR Literature cited in TESII descriptions of species and/or habitats

SPPCODE	Code for the element
KEYWORDS	*Keywords that describe the article*
ITEM	*Code for the literature*
AUTHORS	Authors
JOURNAL_BOOK	*Journal or book where article is located*
ABSTRACT	*Abstract for the article*
ARTICLE	*Body of the literature*
CITATION	Citation for the article
CIT_NUMBER	Number of the citation in the original reference list
TYPE	*Type of literature*
DATE_ARTICLE	Date stamp for database management purposes

S_GRAPHICS Miscellaneous pictures and maps relating to individual species

SPPCODE	*Code for the element*
PHOTO_DESCRIP	*General description to the graphics*
ITEM	*Code for the graphics*
PHOTO_P	*Graphic*

S_INVEN_MONITOR General inventory and monitoring techniques and results for the species (not necessarily involving the military)

SPPCODE	*Code for the element*
HABCODE	*Code for the habitat*
INVENTORY_DESCR	*General description of the inventory technique*
INV_DATE	*Current date for that method*
INV_RESULTS	*Summarized inventory results*
MON_DESCR	*General description for the monitoring method*
MON_DATE	*Current date for the monitoring method*
MON_RESULTS	*Summarized monitoring results*
IDCODE	*Code for the contact person on this methodology*

S_MANAGEMEN Management techniques and contact persons for species or habitat (not necessarily from the installation)

SPPCODE	*Code for the element*
IDCODE	*Code for the contact person*
SPP_MANAGE_DESCR	*General description for the management techniques for the element*
HAB_MANAGE_DESCR	*General description for the management techniques for the habitat*
HABCODE	*Code for the habitat*
MAN_CON	*Management contact*

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